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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/730,681      | 12/06/2000  | Roger A. Green       |                     | 8188             |

7590            06/07/2004

Edwin A. Suominen  
LOUIS J. HOFFMAN, P.C.  
14614 North Kierland Boulevard, Suite 300  
Scottsdale, AZ 85254

EXAMINER

GHULAMALI, QUTBUDDIN

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2631     | 6            |

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                             |                  |
|------------------------------|-----------------------------|------------------|
| <b>Office Action Summary</b> | Application No.             | Applicant(s)     |
|                              | 09/730,681                  | GREEN ET AL.     |
|                              | Examiner<br>Qutub Ghulamali | Art Unit<br>2631 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 06 December 2000.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-28,34,41 and 50 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 25,26 and 50 is/are allowed.  
 6) Claim(s) 1,2,27,28,34 and 41 is/are rejected.  
 7) Claim(s) 3-24 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
     Paper No(s)/Mail Date 2, 4, 5.

4) Interview Summary (PTO-413)  
     Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. This application, filed under former 37 CFR 1.60, lacks formal drawings. The informal drawings filed in this application are acceptable for examination purposes. When the application is allowed, applicant will be required to submit new formal drawings. In unusual circumstances, the formal drawings from the abandoned parent application may be transferred by the grant of a petition under 37 CFR 1.182.

### *Claim Rejections - 35 USC § 103.*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 27, 28, 34, 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ryan (US Patent No. 6,134,261) in view of Berthonis et al ("Berthonis") (US Patent No. 6,625,222).

Consider claims 1, 27 and 28, Ryan teaches a method for sequentially transmitting calibration bursts, the calibration bursts include a plurality of tone frequencies, (abstract; col. 2, lines 37-57) compares the current derived (first set) relative phase difference with a previous

value (second set) of the relative phase difference that was derived from a prior measurement at the remote of an earlier calibration burst, the base station then calculates a transmission phase correction to the plurality of antenna elements in response to the comparing step, to minimize the relative phase differences (vector mismatch) (col. 6, lines 33-43) between the plurality of traffic bursts at the remote station (col. 2, lines 37-57). Ryan however, does not disclose frequency translating the calibration signal to provide a first set of observed samples.

Bertonis discloses an apparatus for providing upstream data transmission, comprising: a frequency translator comprising an input node that is capable of accepting upstream signals in an upstream frequency band and an output node, said frequency translator processing said upstream signals to produce wireless upstream signals in one or more sub-bands at said output node (col. 10, lines 47-59). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include with Ryan's apparatus a frequency translator translating the calibration signal so as to minimize spreading and enhance transmission of signals as taught by Bertonis.

As applied to claims 1, 27, 28 above, Ryan teaches every feature of the claimed invention, but does not explicitly teach generating a local oscillator signal, a baseband calibration signal coupling them to a mixer (modulator) to provide an RF signal, and coupling the RF signal to one or more mixers (modulators) that during operation translate the RF signal using the local oscillator signal to at least one baseband calibration signal. Bertonis with reference to claims 34 and 41, discloses (figs. 2, 4-6) local oscillator signal LO is produced by a voltage controlled oscillator (VCO) 33, the LO and the baseband signal IF is coupled to a mixer 32 to provide an RF signal and at the receiver side coupling the RF signal to a mixer 63 and

translate the RF using the local oscillator LO to a baseband IF signal the antenna 39 is the output node of the frequency translator in the subscriber ODU (alternatively, a directional antenna may be used). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include with Ryan's apparatus a local oscillator signal, a baseband calibration signal coupling them to a mixer (modulator) to provide an RF signal, and coupling the RF signal to one or more mixers (modulators) that during operation translate the RF signal using the local oscillator signal to at least one baseband calibration signal so as to provide improved signal to noise ratio and coherency between the transmitter and the receiver as taught by Bertonis (col. 8, lines 31-58).

Regarding claim 2, Ryan teaches the remote station dispread the calibration signal 110 with an appropriate Hadamard matrix to yield an in-phase signal I1 and a quadrature Q1 signal and provides calibration frame forming vectors (col. 6, lines 10-67).

***Allowable Subject Matter***

4. Claims 25, 26, 50 allowed.
5. Claims 3-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lanzl et al (US Patent 6,353,406), Kapetanic et al (US Patent 6,529,844), Hunsinger

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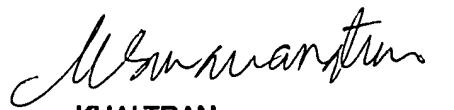
et al (US Patent 6,563,880) are cited as arts of reference for showing method and system for vector network analysis and measurement and tracking.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (703) 305-7868. The examiner can normally be reached on Monday-Friday from 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 703 306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QG  
May 25, 2004.

  
Khai Tran  
PRIMARY EXAMINER  
5/28/04